

National Interagency Coordination Center

Wildland Fire Summary and Statistics Annual Report 2019



Swan Lake Fire, Alaska



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Identifier Legend

Interagency Coordination Centers

NICC – National Interagency Coordination Center

NIFC – National Interagency Fire Center

AK - Alaska

EA - Eastern Area

GB - Great Basin

NO - Northern California

NR - Northern Rockies

NW - Northwest

RM - Rocky Mountain

SA - Southern Area

SO - Southern California

SW - Southwest

CIFFC - Canadian Interagency Forest
Fire Centre

Government Agencies

Department of the Interior:

BIA - Bureau of Indian Affairs

BLM - Bureau of Land Management

FWS - Fish & Wildlife Service

NPS - National Park Service

Department of Agriculture:

FS – USDA Forest Service

Department of Defense: DOD

Department of Homeland Security:

FEMA - Federal Emergency
Management Agency

ESF #4 – Emergency Support Function
4, Firefighting

Department of Commerce:

NWS - National Weather Service

Department of Energy: DOE

ST – State

ST/OT – State and Other combined

OT – Other

PRI – Private

CNTY – County

CN – Canada

AU – Australia

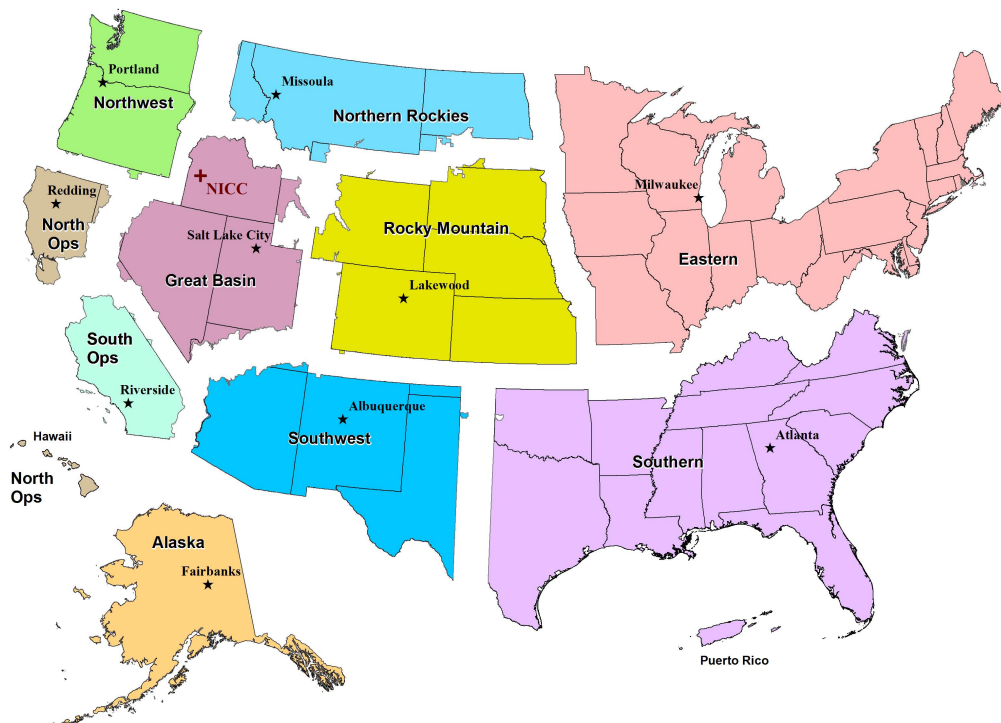
NZ – New Zealand

Preface

Statistics used in this report were gathered from the interagency Fire and Aviation Management Web Applications (FAMWEB) system, which includes the Situation Report and Incident Status Summary (ICS-209) programs¹. Previous National Interagency Coordination Center (NICC) annual reports and other sources were also used in this document. The statistics presented here are intended to provide a national perspective of annual fire activity, but may not reflect official figures for a specific agency. The statistics are delineated by agency and Geographic Area. Pie chart figures are rounded to the nearest whole percentage point. This document and prior year annual reports are available electronically on NICC's Intelligence web page: <https://www.predictiveservices.nifc.gov/intelligence/intelligence.htm>.

Resource mobilization statistics used in this report were gathered from the interagency Resource Ordering and Status System (ROSS), which tracks tactical, logistical, service and support resources mobilized by the national incident dispatch coordination system. Statistics presented in this report are the resources requested by any of the ten Geographic Area Coordination Centers (GACC) and processed through NICC². Requests by FEMA are placed to NICC through Emergency Support Function (ESF) #4 (Firefighting). The resource ordering process and procedures may be found in the National Mobilization Guide. The National Mobilization Guide can be found on the NICC web site (<https://www.nifc.gov/nicc/>) under reference materials.

Geographic Area Coordination Centers



¹ Situation Report and ICS-209 data are considered situational and provisional, as they are reported while wildfire activity and incidents are occurring, plus they do not account for all wildland fires and their final outcomes. Some wildfires, including many that are suppressed solely by private citizens or local fire departments (not by wildland fire management agencies), are never reported to any Dispatch Center that submits Situation Report data. Additionally, ICS-209 reports are not required for the small, short duration wildfires that comprise the vast majority of overall fire occurrence annually. For official data and summary statistics, one must contact each of the individual agencies affected and refer to their final fire reports and other authoritative sources of agency-specific information.

² Because this report only tallies resource requests processed through NICC, it excludes the substantial number of ROSS orders that were placed and filled within the same GACC. It also excludes any resource usage not tracked in ROSS, such as local dispatch of initial attack resources.

National Interagency Coordination Center

2019 Fire Environment Summary

Winter (December 2018 – February 2019)

The winter began under a very active westerly flow pattern that allowed for several wet systems to move into the Pacific Northwest and California from the Pacific Ocean and move across the Great Basin on an easterly track. The focus of the precipitation associated with these systems was over California and the Great Basin, including the Four Corner States. Mountain snowpack began to quickly build. While productive for precipitation, this progressive pattern was not initially conducive for frequent, severe arctic weather intrusions from Canada. So extreme conditions were not prevalent across the northwestern states in early winter; however, that would change as the overall weather pattern became more amplified in late January and February. Interspersed between passing weather systems, were the periodic high pressure ridge events that led to significant fog episodes in the prone areas like the Columbia Basin, northern Idaho, and western Montana. In late January, there was a pronounced change in the overall weather pattern. The active pattern across the southwestern quarter of the country continued, but the pattern across the northwestern quarter of the country and the East became more amplified. This opened the door for several very long duration arctic weather outbreaks across the northern Great Plains, and it produced overall drier than average conditions across the northern Cascades.

Precipitation trends in December were near to slightly below average across the West early in the month and near average in the East. Alaska experienced overall drier than average conditions across its interior. By mid-month, the active weather pattern became more entrenched. This allowed for the precipitation to trend towards average amounts. Exceptions to this were the central Great Plains, which experienced 400% of average precipitation, and the Montana Hi-Line, which received just 10% of average precipitation. The active weather pattern continued in January and February as passing systems became stronger and more moist as they moved east across the Great Basin. By mid-January and February, most locations across central portions of the country were receiving 100% to 300% of average precipitation. Exceptions to this were the Southeast, West Texas, New Mexico, and the North Cascades of Washington, which received between 10% and 75% of average precipitation. The overall effect on the western drought was positive as areas encompassed by moderate or greater drought conditions began to rapidly diminish except along the Canadian Border with Washington, where it persisted. The Alaskan Interior remained dry.

Temperatures were generally near average across the West in December and January and above average in the East. Between mid-January and mid-February, the Upper Midwest experienced temperatures that were at least 9 degrees above average. That was about to change as the weather pattern began to shift entering February, when a very cold airmass moved south out of central Canada into the northern Great Plains and Upper Midwest. This airmass was repeatedly reinforced by secondary intrusions of frigid air. The cold air gradually became more firmly entrenched across the West and the remainder of the Great Plains as the active weather pattern continued. This effectively enhanced mountain snowfall production.

The impacts on mountain snowpack were positive. Most basins went from trending near average to being well above average by the end of February. Snowpack across the Northern

Rockies was generally between 100% and 120% of average. Further south, along the storm track, values ranged between 120% and 180% of average. Only the North Cascades showed below average snowpack, as levels were between 76% and 83% of average. Alaska's snowpack across the central Interior and along the northern Gulf Coast was between 39% and 79% of average.

Spring (March – May)

A large, broad trough of low pressure developed and lingered over the country during March, which allowed for cooler than average conditions to spread across the nation. While the airmass was not as brutally cold as central Montana was in February, where the average temperature in Great Falls was below 0 degrees, it was still cold. Frequent pulses of moisture moved east within the overall pattern. By the end of March, the broad trough began to weaken and move east. This allowed for a warming and drying trend to begin across the West as high pressure ridges became a more common feature. The wetter than average conditions continued across the East as the impacts from the departing trough continued to be felt. May was a month of transition as a progressive pattern resumed. The month featured weather conditions that varied between warm and dry (brought on by passing weak high pressure ridges) to cool and wet (brought on by passing strong low pressure systems).

Wetter than average conditions continued in March across central portions of the country from California to Nebraska to Indiana. The Sierra Nevada Mountains and much of the Great Basin received as much as 400% of average precipitation. In contrast, areas along the Canadian Border and across the Gulf Coast states received between 25% and 75% of average rainfall. A reversal of this occurred in April, when the Gulf Coast states received as much as 400% of average precipitation and the central portions of the country from California to Iowa received just 50% of average precipitation. A very wet pattern developed in May across the Great Basin and California. Nearly half of the areas in Southern California and the Great Basin received at least 400% of average precipitation. This abundant precipitation led to a substantial crop of grasses and other fine fuels. Temperatures during the spring were generally below average, except in April, where the West and the East Coast exhibited temperatures that were between 2 and 4 degrees above average. Temperatures across Alaska were generally above average during the period. By late May, the western drought had all but been eradicated. Only small areas of Moderate Drought remained across the northern Cascades and the Okanogan as well as the Four Corners area.

Final snowpack numbers were even more impressive than the previous year across the Great Basin, California, and the Southwest. There were reports of ski resorts in the Sierra having to close due to too much snow! Basin averages ranged from about 120% to 200% of average. Looking north along the Canadian Border, amounts were near to slightly below average. This was due to this area being slightly north of the winter's average storm track. The snowpack across the Alaskan Interior showed slight signs of improvement late, but basin averages rose to only 65% to 75% of average.

Summer (June – August)

The summer of 2019 was atypical in many ways. Across the Lower 48, the spring-like pattern held through June and into early July. The development of long-duration, hot high pressure ridge events in the West did not occur. On the contrary, June and July were cooler than average. This resulted in a longer than average green-up and delayed curing cycle in the fine fuels. It also promoted a slower than average melting rate of the mountain snowpack. These conditions, along with the ample spring moisture, allowed for the growth of a very dense,

continuous grass crop across the West, which raised concerns about the increased fuel loading and its inevitable flammability once cured. When the summer heat arrived in August, the typical weather events were not as intense nor long in duration. The southwestern monsoon was delayed and did not arrive until the second week of July. Even then, it was weaker than average due to a lack of tropical influxes of moisture. Moreover, the monsoon tended to track along its eastern extent, providing little relief to ongoing dry conditions in western Arizona, where fire season persisted through August.

While temperatures were generally 2 to 4 degrees below average in June and July, except along the West Coast, where they were generally about 2 to 4 degrees above average, precipitation was mostly below average across the West. As is typical, rainfall events became less frequent as the period progressed. Amounts received were generally less than 50% of average. Impacts from this were offset by the late spring moisture received and the cooler than average temperatures. In the East, conditions were generally wetter than average, with near average temperatures reported. A dry signal did begin to emerge in the Carolinas, Georgia, and Alabama in July, but impacts from this were mitigated by a series of rain events that occurred in early August. Pronounced hot and dry conditions across Texas led to an elevation of fire activity across central and western portions of the state in August as drought began to take hold beneath a flat but strong Four Corners high pressure area.

Slightly warmer and drier than average conditions developed across the West in August. This allowed for fuels to finally become receptive to fire activity. A pair of multi-day lightning bursts produced an upturn in fire starts. However, a lack of significant winds prevented rapid growth on most fires. In fact, the first significant wind event did not occur until the end of the month. It occurred in the Great Basin, where fuels were already beginning to recover. Higher elevations in the Sierra, the Cascades, and across the Northern Rockies were never able to fully enter the fire season due to the late melting of the mountain snowpack.

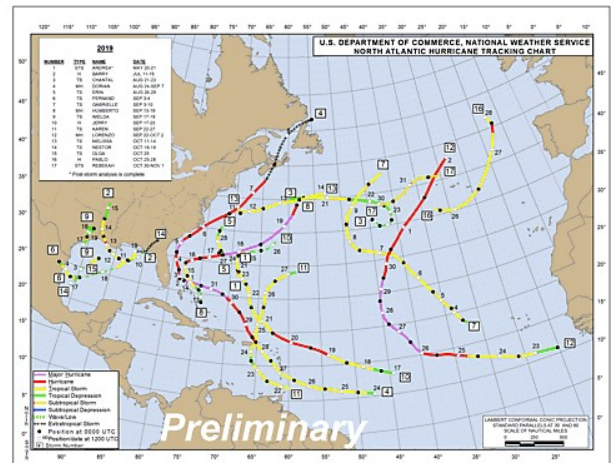
Conditions were different in Alaska. June and early July were very convective. In general, storms were wet, but they produced substantial lightning across the Interior, which started numerous fires. A pattern shift to extraordinary hot and dry conditions occurred at the end of June to the second week of July. Many locations across the state shattered previous all-time record high temperatures over a three to four-day period starting on Independence Day, and July 2019 became the hottest month on record for the state as a whole. The critically dry conditions across the Interior worsened. The Canadian Forest Fire Danger Rating System indices that are used in Alaska reached peak values that were literally off the charts, un-plottable. Drought across the Interior rapidly took hold and expanded. The late summer rains arrived later than usual in early August but missed the south-central portion of the state. The abnormally dry conditions allowed for fire activity to continue on the Kenai Peninsula, Mat-Su Valley, and Copper River Basin through the month before ending.

Autumn (September – December)

The western fire season began to wind down in September across the northwestern portion of the country as the frequency of passing cool and wet systems began to move across the Northern Tier of the country. By late in the month, higher elevations across Washington, Idaho, and Montana were beginning to see snowfall. On September 27, a southward-moving Canadian cold front interacted with a very moist system approaching from the Pacific Ocean to produce as much as four feet of snow across portions of central Montana.

While the cool and wet pattern persisted across the Pacific Northwest in September and early October, abnormally dry conditions begin to emerge across California and the Great Basin, where precipitation amounts received during September were generally 25% or less than average. Nonetheless much cooler than average temperatures, along with decreasing afternoon heating resulting from shorter days, helped lessen increases in fire potential in most areas across the West except California. The onset of the fall Foehn wind (Santa Ana, Sundowner, Diablo, and North winds) season began in early October. The downsloping winds and off-shore flow allowed for temperatures to elevate, which in turn resulted in lengthy periods of very low humidities. The periodic winds plus the lower humidities allowed for fire activity across the state to increase. The frequency of the events increased through the month becoming nearly a daily occurrence during the last days of October.

Looking elsewhere during the period, both Texas and the Southeast became quite dry. Tropical activity in the Gulf of Mexico was less active than recent years, and the East Coast was spared a significant impact from Category 5 Hurricane Dorian as the storm turned to the north and then to the northeast just off the Florida's Atlantic Coast. Most locations across the South and East received around 25% of average precipitation. Regionally, temperatures were 6 to 10 degrees above average. These conditions allowed for Moderate to Severe Drought conditions to emerge in some areas, and for fire potential to begin elevating ahead of the fall leaf drop. In mid- began to provide relief to the Appalachian Mo drought remained, the fire potential decreased. T than average.



The dry conditions across much of the West continued well into November. The intake of late season moisture into the vegetation prior to dormancy did not occur. This could prove to be problematic entering fire season 2020, particularly when coupled with the already elevated loading of fine dead fuels that will carry over from 2019 in areas that have not burned. The below average temperatures observed across most of the West during October began to trend upward toward normal and even above normal. Drought continued to slowly expand during this period.

A pattern change occurred during late November and early December. The high pressure ridge located off the West Coast flattened and allowed for a more active, wetter pattern to emerge. The Pacific Northwest, California, and the Southwest began to receive much needed precipitation. Early season mountain snowpack levels in the Sierra began to rebound. By mid-month, most of the southwestern quarter of the country had received more than 200% of average precipitation or greater over the past 30-day period. Temperatures were near average.

National Fire Activity Synopsis

The 2019 fire season was below normal for number of reported wildfires (75% of the 10-year annual average). There were 50,477 wildfires reported nationally (compared to 58,083 wildfires reported in 2018). The number of acres burned was also below normal in 2019 (67% of the 10-year average). Wildfires consumed 4,664,364 acres reported nationally (compared to 8,767,492 acres reported in 2018). Nearly 2.5 million acres burned in Alaska alone, accounting for more than half of the nation's total burned acreage.

In comparing the individual Geographic Areas' 2019 reported fire occurrence with their annual average from the prior 10 years, Alaska (138%) was the only area that experienced significantly above average fire occurrence in 2019, while the Northwest (111%) reported slightly above average fire occurrence. Both Southern California (105%) and Northern California (94%) saw near average fire occurrence. Fire occurrence in the remaining areas – Great Basin (91%), Southwest (90%), Northern Rockies (81%), Southern Area (70%), Rocky Mountain (54%) and Eastern (54%) – was below average.

With a similar comparison of 2019's burned acreage versus the 10-year average, only Alaska (194%) experienced above average acres burned. All other Geographic Areas saw below average acres burned: Southwest (78%), Northern California (48%), Great Basin (42%), Eastern (38%), Southern Area (38%), Northwest (28%), Rocky Mountain (24%), Southern California (20%) and Northern Rockies (15%). Only 27 fires and complexes exceeded 40,000 acres in 2019, which is 21 fewer than 2018 (see Significant Fire Activity below for a list of those fires).

A total of 963 structures were reported destroyed by wildfires in 2019, including 444 residences, 482 minor structures, and 37 commercial/mixed residential structures. This is well below the annual average of 2,593 residences, 1,600 minor structures, and 94 commercial/mixed residential structures destroyed by wildfire. California accounted for the highest number of structures lost in one state in 2019: 315 residences, 22 commercial/mixed residential structures and 232 minor structures. Alaska was second with 57 residences and 92 minor structures lost.

Requests for firefighting resources placed with NICC during the 2019 fire season were fewer than the 10-year average in all categories. Filled requests for crews, engines, overhead, helicopters and heavy air tankers also were well below their respective 10-year averages.

National Type 1 Incident Management Teams were mobilized 14 times (down from 47 in 2018) and spent a total of 183 days on assignments (down from 658 days in 2018). Type 2 Teams were mobilized 44 times (down from 107 in 2018), for a total of 480 days assigned to incidents (down from 1,403 days in 2018). No Area Command teams were mobilized in 2019 (also zero assignments in 2018). National Incident Management Organizations (NIMO) mobilized 6 times in 2019.

Military and International Resource Mobilizations

Military: There were no military mobilizations for wildfire suppression in 2019.

International: Between June 5th and July 10th, through the NIFC-CIFFC Agreement, the United States provided 20 crews and 24 individual wildland fire personnel to Alberta, Canada.

Between November 14th and December 31st, through the NIFC-Australia Agreement, 85 wildland fire personnel were assigned to support large fires in New South Wales and Victoria, Australia. Support to Australia has continued into 2020.

Significant Wildfires

Fires Over 40,000 Acres in 2019

Of the 27 largest fires in 2019, 70% (19 fires), including all but two of the nation's 15 largest fires, occurred in Alaska.

Name	GACC	State	Start Date	Contain or Last Report Date	Size (acres)	Cause*	Estimated Cost
Old Grouch Top	AK	AK	6/5	8/1	307,969	L	\$61,000
Frozen Calf	AK	AK	6/24	7/11	240,543	L	\$4,332,806
Hess Creek	AK	AK	6/21	8/1	189,369	L	\$3,005,369
Swan Lake	AK	AK	6/5	10/2	167,183	L	\$48,101,094
Bearnose Hill	AK	AK	6/29	7/11	130,768	L	\$2,108,024
Woodbury	SW	AZ	6/8	7/5	123,875	U	\$20,000,000
Sheep	GB	ID	6/22	7/25	112,106	L	\$710,000
Black River	AK	AK	6/18	8/8	107,078	L	\$30,000
North River	AK	AK	6/10	7/21	101,451	L	\$40,000
Tractor Trail 2	AK	AK	6/22	7/11	92,628	L	\$461,188
Hurst Creek	AK	AK	6/22	7/4	85,261	L	\$231,175
Little Crazy Mountain	AK	AK	6/21	7/25	79,953	L	NR
Little Mud River	AK	AK	6/21	7/25	79,675	L	NR
Kincade	NO	CA	10/23	11/7	77,758	U	\$77,144,684
Smith Creek	AK	AK	6/30	8/2	71,815	H	NR
Pothole	GB	ID	8/6	8/8	69,704	H	\$600,000
Hadweenzic River	AK	AK	6/22	7/19	62,068	L	\$5,004,308
Walker	NO	CA	8/16	9/25	54,608	U	\$35,600,000
Wilderness	AK	AK	6/20	7/25	53,411	L	\$60,000
Foraker	AK	AK	6/26	7/25	49,980	L	\$203,477
Grouse Creek	AK	AK	7/10	8/7	49,533	L	\$2,000,000
Page Mountain	AK	AK	6/22	8/1	46,897	L	\$394,900
Williams Flatt	NW	WA	8/2	8/24	44,446	L	\$19,432,000
Bergman Creek	AK	AK	6/21	7/25	42,300	L	\$1,233,004
Sawgrass	SA	FL	6/23	6/27	42,000	L	NR
Cold Creek	NW	WA	7/18	7/21	41,920	U	\$900,000
Tettjajik Creek	AK	AK	7/2	7/11	41,300	L	\$40,341

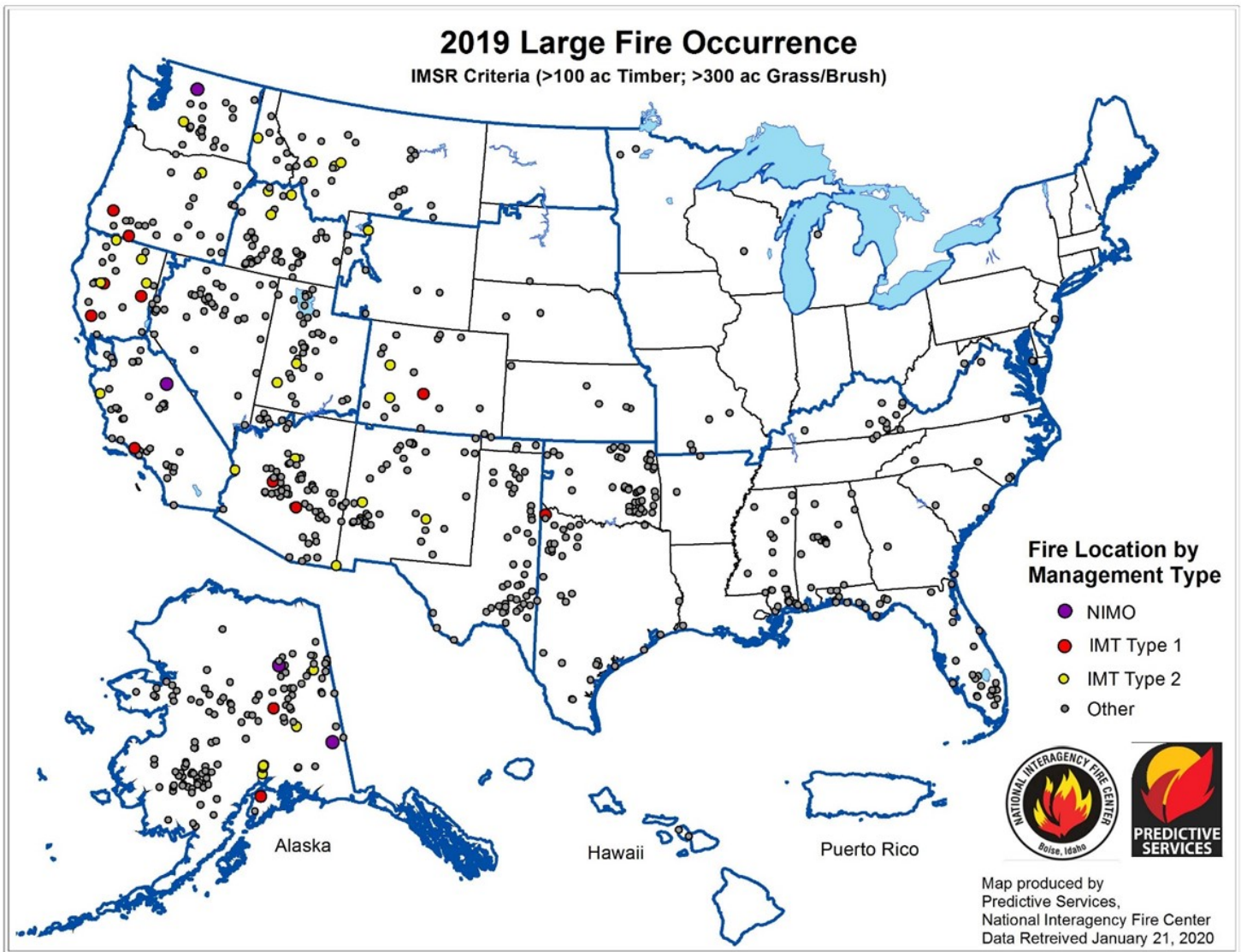
* L – Lightning H – Human U – Unknown/Under Investigation OT - Other NR – Not Reported

Information in the above table was derived from ICS-209 reports submitted via FAMWEB. This information may not reflect final official figures.

Significant Fire Activity

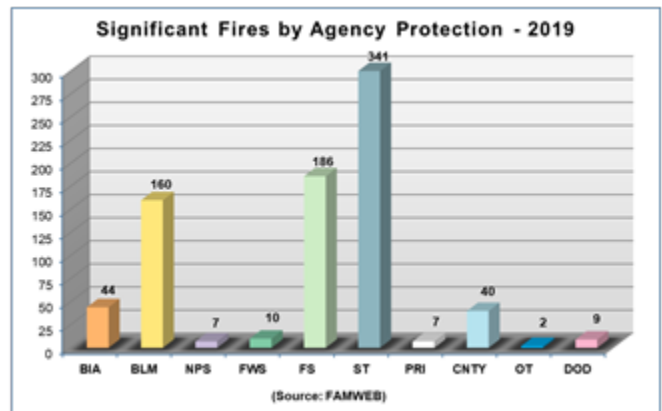
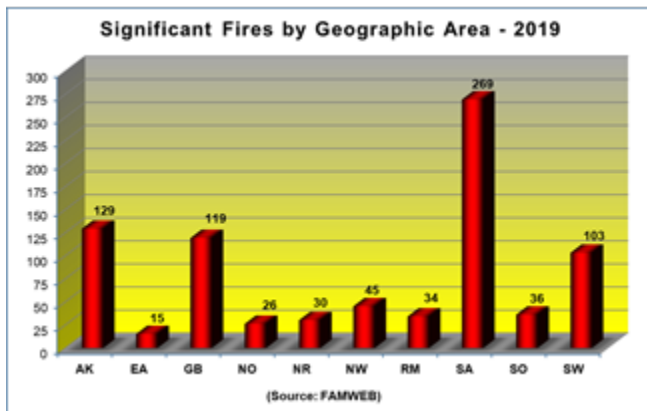
Significant fires are defined in the National Mobilization Guide as fires that burn a minimum of 100 acres in timber fuel types or 300 acres in grass and brush fuel types, or are otherwise managed by a Type 1 or 2 Incident Management Team or NIMO.

There were 806 significant wildfires and complexes reported in 2019 (derived from ICS-209 reports submitted through FAMWEB). Significant wildfires represented about 2% of total wildfires reported nationally in 2019. The map below depicts the locations of these fires.



Percent of Reported Significant Fires by Geographic Area

AK	NW	NO	SO	NR	GB	SW	RM	EA	SA
16%	6%	3%	4%	4%	15%	13%	4%	2%	33%



Overall Wildfire Activity Reported to NICC

From the national perspective, 2019 was a below average fire year in the U.S., with 50,477 reported wildfires that burned 4,664,364 acres in total. In comparison to the annualized average based on the prior ten years, this represented about three-quarters of the normal number of fires and two-thirds of the normal acres burned.

